**Direct numerical method for solving a class of fourth-order partial differential equation**

ABSTRACT

In this paper, we classified a class of fourth-order partial differential equations (PDEs) to be fourth-order PDE of type I, II, III and IV. The PDE of type IV is solved by using an efficient numerical method. The PDE is first transformed to a system of fourth-order ordinary differential equations (ODEs) using the method of lines, then the resulting system of fourth-order ODEs is solved using direct Runge-Kutta method (RKFD). The RKFD method is constructed purposely for solving special fourth-order ODEs. Numerical results demonstrated that the RKFD method is in good agreement with the exact solutions.

**Keyword**: RKFD method; System of fourth-order ODEs; Fourth-order PDEs; Method of lines